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Amendments to the Claims: Please amend the claims as indicated.

1. (currently amended) A method for predictive recognition of errors in a manufacturing system, said method comprising the steps of:

archiving a plurality of error patterns that previously occurred in the manufacturing system, the archived error patterns created by statistical methods;

monitoring manufacturing system data in real-time; ~~and~~

maintaining an evaluation unit with input data that defines functional relationships of plant components, on-site relationships of plant components, hierarchical relationships between controllers and field devices, and relationships between enterprise resource planning and manufacturing execution systems, wherein conditions for the manufacturing system data to be monitored are defined in the evaluation unit and submitted to peripheral devices in the manufacturing system based on a hierarchical plant model, plant topology, and automation topology to reduce the amount of the manufacturing system data to be analyzed by the evaluation unit;

comparing the monitored data with the archived error patterns in real-time to predict imminent errors likely to occur in the manufacturing system~~.~~;

providing recommended actions to prevent the predicted imminent errors; and

refining the plurality of error patterns in an automated learning module that receives indications of relevance in matching of the monitored data to the archived error patterns and receives indications of success of the error predictions and recommended actions, and automatically modifies the archived error patterns to improve the relevance indications and the success indications.

2. (cancelled)

3. (currently amended) A method according to claim 1, wherein information for the archived error patterns is compressed by statistical methods or data mining mechanisms.

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4. (currently amended) A method according to claim 1, wherein the comparing of the data is performed by data mining mechanisms.

5. (previously presented) The method according to claim 1, wherein the archived error patterns are automatically built by the monitored data using statistical methods or data mining mechanisms.

6. (cancelled)

7. (currently amended) The method according to claim 1, wherein the monitored data are minimized by vertical or horizontal data confinement using the plant topology ~~structural information of the manufacturing system.~~

8. (previously presented) A method according claim 1, further comprising storing the monitored data in a ring-buffer.

9. (currently amended) A method according to claim 1, wherein the monitored data are automatically read out components of the manufacturing system.

10. (previously presented) A method according to claim 1, further comprising triggering corrective actions.

11. (previously presented) A method according to claim 1, wherein the method is adapted for discrete or continuous or batch processes.

12. (currently amended) A computerized system for predictive recognition of errors in a manufacturing system, comprising:

a mechanism for archiving a plurality of error patterns that previously occurred in the manufacturing system, the archived error patterns minimized by statistical methods;

an evaluation unit with input data that defines functional relationships of plant components, on-site relationships of plant components, hierarchical relationships between controllers and field devices, and relationships between enterprise resource planning and manufacturing execution systems, wherein conditions for the manufacturing system data to be monitored are defined in the evaluation unit and submitted to peripheral devices in the manufacturing system based on a hierarchical plant model, plant topology, and automation topology to reduce the amount of the manufacturing system data to be analyzed by the evaluation unit;

a mechanism for monitoring manufacturing system data in real-time;

a ring buffer for storing the monitored data; and

a mechanism for comparing the monitored data with the archived error patterns in real-time to predict imminent errors likely to occur in the manufacturing system, and for providing recommended action; and

an automated learning module that receives indicators of relevance in matching of the monitored data to the archived error patterns, and receives indicators of success of the error predictions and recommended actions, and automatically modifies the archived error patterns to improve the relevance indicators and the success indicators.

13. (currently amended) A system according to claim 12, wherein the comparing of the data is performed by data mining mechanisms.

14. (previously presented) A system according to claim 12, wherein the archived error patterns are automatically built from the monitored data using statistical methods or data mining mechanisms.

15. (cancelled)

16. (currently amended) A device for predictive recognition of errors in a manufacturing system, comprising:

a mechanism for archiving a plurality of error patterns that previously occurred in the manufacturing system, the archived error patterns compressed by statistical methods or data mining methods;

a mechanism for monitoring manufacturing system data in real-time;

a mechanism for storing the monitored data in a ring buffer;~~and~~

an evaluation unit with input data that defines functional relationships of plant components, on-site relationships of plant components, hierarchical relationships between controllers and field devices, and relationships between enterprise resource planning and manufacturing execution systems, wherein conditions of the manufacturing system data to be monitored are defined in the evaluation unit and submitted to peripheral devices in the manufacturing system based on a hierarchical plant model, plant topology, and automation topology to reduce the amount of the manufacturing system data to be analyzed by the evaluation unit;

a mechanism for comparing the monitored data with the archived error patterns in real-time to predict imminent errors likely to occur in the manufacturing system and for providing recommended actions~~;~~: and

an automated learning module that receives indicators of relevance in matching of the monitored data with the archived error patterns, and receives indicators of success of the error predictions and recommended actions, and automatically modifies the archived error patterns to improve the relevance indicators and the success indicators.

17. (previously presented) A device according to claim 16, wherein the device is a dedicated unit in a manufacturing environment.

18. (previously presented) A device according to claim 16, wherein the device is a decentral net component.

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19. (previously presented) A device according to claim 16, wherein the device is a field device.

20. (previously presented) A device according to claim 16, wherein the device is a PLC.

21. (new) A method according to claim 1, further comprising:

initially collecting the manufacturing system data in the peripheral devices;

providing selected error patterns from the evaluation unit to the peripheral devices;

recognizing within the peripheral devices potential errors by matching the manufacturing system data collected therein with the selected error patterns provided thereto; and

when a potential error is recognized by any one of the peripheral devices, sending the manufacturing system data collected therein to the evaluation unit.

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